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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

IN RE APPLICATION OF:	ATTY. DOCKET NO.: AUS920000620US1
GREGORY M. NORDSTROM	EXAMINER: *MOHAMMAD SIDDIQ*
SERIAL NO.: 09/692,342	
FILED: *OCTOBER 19, 2000*	ART UNIT: 2154
FOR: METHOD AND SYSTEM FOR INFORMING AN OPERATING SYSTEM IN A SYSTEM AREA NETWORK WHEN A NEW DEVICE IS CONNECTED	

APPEAL BRIEF UNDER 37 C.F.R. §1.192

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Sir:

This Brief is submitted in support of the Appeal of the Examiner's final rejection of Claims 1-22 in the above-identified application. A Notice of Appeal was filed in this case on September 7, 2004 and received in the United States Patent and Trademark Office on September 7, 2004. Please charge the fee of $340.00 due under 37 C.F.R. §1.17(c) for filing the brief, as well as any additional required fees, to IBM Deposit Account No. 09-0447.

REAL PARTY IN INTEREST

The real party in interest in the present Application is International Business Machines Corporation, the Assignee of the present application as evidenced by the Assignment set forth at reel 011217, frame 0971.

RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences known to Appellant, the Appellant's legal representative, or assignee, which directly affect or would be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1-22 stand finally rejected by the Examiner as noted in the Final Office Action dated June 10, 2004. The rejection of Claims 1-22 is appealed.

STATUS OF AMENDMENTS

Appellants' Amendment A, filed on March 31, 2004, was entered by the Examiner, as noted in the Final Office Action. No amendments have been made subsequent to the Final Action from which this Appeal is filed.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellant's invention provides a method and system for "dynamically informing one or more operating systems (OSes) within a multi-partitioned, distributed computer system (also referred to as a SAN), when a (new) device/component is added on the network. The SAN has network-level partitions and one or more OSes associated and/or registered for notification with individual partitions. When a new device is added to a node of a partition, each OS associated or registered with that partition is notified of the new device, and the registered OS implements required configuration processes to provide OS-support and other partition/network-level support for the new device.

As described at page 3, paragraph 1 and page 6, paragraph 1, the OS registers with a subnet administrator (SA) to be notified when a new component (or device) is added to the

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subnet and placed in a partition to which the particular OS has access. A subnet manager (SM) initializes and configures the new component that is added and, through the partition manager, associates the component to one or more partitions of the subnet. Each OS with access to the partition(s) to which the component is associated is notified that the new component is available. Following, the OS updates its database of available components to include the new component and establishes communication with the new component.

As recited by the independent claims (1 and 17 and 8 and 14, respectively), Appellant's invention provides the following features:

(1) "configuring said network to provide support for said component, wherein, when an OS supports only components within a partition among the one or more network-level partitions to which the OS is assigned, said configuring process includes informing the OS assigned to a partition to which said node belongs of the presence of the component and enabling OS and other support for said component;" and

(2) "a network administration utility that, and in response to said network manager dynamically determining when a component is added, notifies an OS registered with said network administration utility that said component is added, wherein said OS updates required OS parameters to enable OS support of said component" (emphases added).

Additional features recited by Appellant's dependent claims, include:

(3) "registering the OS with a management system of said network" and "automatically alerting said OS via said management system that said component is added–to said node;" (Claims 2, 18)

(4) "associating said component to at least one partition of said network from among the one or more network-level partitions;" (Claims 5, 19) and

(5) "checking for subscribed consumers within the partition, said subscribed consumers including said one or more OS; and notifying said OS of said component only when said OS is assigned to said partition or said OS has subscribed to be notified of new components and has correct access privileges for the partition in which the node exists, wherein each OS is provided predefined access privileges to particular ones of said one or more network-level partitions" (Claims 6, 20, 21).

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GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A.   The Examiner's rejection of Claims 1-22 under 35 U.S.C. §103(a) as being unpatentable over *O'Toole, et al.* (U.S. Patent No. 6,345,294) (hereinafter *O'Toole*) in view of *Royce, et al.* (U.S. Patent No. 5,748,884) (hereinafter *Royce*) is to be reviewed on Appeal.

ARGUMENT

A.   The rejection of Claims 1-22 under 35 U.S.C. §103(a) as being unpatentable over *O'Toole* in view of *Royce* is not well founded and should be reversed.

I. Claims 1 and 17

The combination of *O'Toole* and *Royce* does not suggest the features of Appellant's exemplary Claims 1 and 17. Specifically, the combination fails to suggest: (1) "configuring said network to provide support for said component, wherein, when an OS supports only components within a partition ... to which the <u>OS is assigned</u>, ... <u>informing the OS assigned to a partition</u> to which said node belongs of the presence of the component and enabling OS and other support for said component;" and/or (2) "in response to ... dynamically determining when a component is added, <u>notifies an OS registered with said network administration utility</u> that said component is added, wherein said OS updates required OS parameters to enable OS support of said component."

O'Toole provides remote booting and configuration of a network appliance (i.e., without a local boot server or person familiar with configuring the appliance) (Abstract; col. 3, line 21-39). General implementation features of *O'Toole* includes providing a self-organized distributed appliance (SODA) (Abstract; col. 3, lines 40-52). *O'Toole's* system is designed to remove the requirement for hands-on or localized configuration of a network appliance (*see* col. 3, lines 6-20).

Distinguishable from Appellant's claimed invention, *O'Toole* primarily allows a remote appliance to be configured by accessing a remote, boot server across a network. Appellant's invention is directed towards configuring the network system and network-OS to support the added component, once the component is detected on the network. One skilled in the art would

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appreciate the significant distinction between these two processes and not find one suggestive of the other.

With respect to the rejections, Examiner clearly mischaracterizes what is taught by *O'Toole* by stating that col. 2, lines 1-13 discloses a method for configuring a network and that col. 3, lines 20-35 discloses "configuring said network to provide support for said component."

O'Toole (at col. 2, lines 1-13 and col. 3, lines 20-35) describes an appliance sending a DHCP packet to obtain configuration information from a boot server. *O'Toole* is thus solely concerned with configuring the appliance itself and not with configuration of the network to support the appliance. Further, *O'Toole* clearly does not suggest the OS being assigned to specific partitions and "informing the OS assigned to a partition" during the configuring process. Examiner agrees that these and other features are not disclosed by *O'Toole*, and Examiner relies on *Royce* to support the rejection of those features.

Examiner correctly attributes to *Royce* a reference to "partitions". *Royce* specifically describes a computer system that "may be partitioned into logical partition s (LPAR)," where "[e]ach mainframe LPAR ... is treated as a n individual computer" (col. 3, line 66 – col. 4, line 3).

Royce describes an autonotification system for notifying recipients of detected events or "jobs that are executed on a plurality of mainframe LPARs" (Title and Abstract; col. 4, ll 24-26, 31-34). The detected/trigger events of interest in *Royce* are clearly defined as being "job failures, abnormal ends (ABENDS), erroneous output, return codes, and successful completions" (Abstract). While *Royce* described some network-level notification, *Royce* fails to disclose or suggest anything remotely related to notifying an OS of when a component is added to the network and then configuring the network and OS to support the added component.

Given the clear differences in the application of both patents, one skilled in the art would not be inclined to combine the *Royce* and *O'Toole* in the manner suggested by Examiner. Even with Appellant's invention as a guide, the combination of these references would have been unlikely since the combination yields/provides little or no synergistic benefit.

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Thus, even if motivation could be found within either reference to combine the references, the resulting combination would still not suggest the features of Appellant's claimed invention. Such a combination would be viewed by one skilled in the art as simply suggesting enabling remote configuration of an appliance physically located across the network using a server that includes one or more mainframe LPARs and which completes an internal detection of specific programming events (from the above list) that causes the generation of an autonotification event.

There is absolutely no suggestion in either reference of assigning an OS to a specific partition among multiple partitions and/or of an OS providing network level support for only components within a specific partition to which the OS is assigned. Examiner's conclusion of page 4 indicates that Examiner may have misunderstood the trust of Appellant's claimed invention, which is NOT to provide "an automatic notification system ... that automatically performs predetermined notification procedures based on specific messages detected from an operating system."

Appellant has provided numerous arguments herein indicating why the Examiner has not established prima facie obviousness of the present invention. From the above arguments (and other argument provided below), it is clear that the combination of O'Toole and Royce fails to suggest several key features of Appellant's invention. Thus, Appellant believes that Exemplary Claims 1 and 17 and all other pending claims are not rendered unpatentable by the cited combination of references and should be allowed.

II. Claims 8 and 14

With respect to Claims 8 and 14, the cited section of O'Toole relied on by Examiner, namely col. 20, lines 14-17 (and 55-59) fails to suggest key features recited by those claims. Lines 14-17 states: "The manager of a SODA network can change the information stored in the appliance registry at any time. The SODA appliances will reconfigure themselves when such a change is made." Lines 55-59 describe monitoring and tracking of appliances that are inoperative for a fixed length of time and automatically scheduling replacement appliances.

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Examiner also relies on col. 6, lines 25-38 and col. 1 lines 35-64, which provide additional descriptions of the appliance configuring itself by accessing a remote server.

First monitoring for inoperative appliances and automatically ordering new appliances to replace inoperative ones has no bearing on Appellant's invention. Second, *O'Toole* does not provide therein a notification to the OS of the detection of the added component. Third, nothing in the first or second section teaches (or suggests) a network management utility (comprised solely of computer hardware and/or software components) that detects when a component is added and itself configures the network to provide OS and port support for the added component.

It is thus unclear to Appellant what in the above sections Examiner relies on to support the rejection of Claims 8 and 14. Particularly since, as explained above, those sections clearly refer to a configuration of the appliance and NOT to a configuration of the OS and network system to support the component (appliance). Having the appliances reconfigure themselves based on an action of the human network manager to change information in the appliance registry operates is functionally different from the process recited by Appellant's claims. First, Appellant's network manager utility is reactive to detected changes in the network and not the cause of the change to the network. Second, there is a human component in *O'Toole* while Appellant's process is dynamically completed.

III. Claims 2 and 18

Examiner bases his rejection of the above claims on col. 2, line 28, col. 5, lines 55-57, and col. 7, lines 40-67 of *O'Toole*. Those sections are, however, devoid of any suggestion of (1) registering the OS with a management system, which provides a notification to each registered OS when a new component is detected and/or (2) the management system actually alerting (signaling) the OS when the component is detected.

Those sections of *O.Toole* respectively describe: (1) Microsoft Windows® providing an option for a user "to tell the computer using a dialog check box that every time the computer boots the computer should broadcast a message and try to obtain the IP address from a DHCP server," rather than manually store the IP address of the computer in a box (*see* col. 2); (2)

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"SODA appliances are inexpensive PC's running the Linux operation system;" and (3) the boot server responding to a received DHCP request with a message that includes IP address and subnet mask of the appliance, and IP address of one or more routers and named servers (*see* col. 7).

Notably, the first and last sections focus solely on allowing the appliance to request and then receive its IP address and other operating parameters when the appliance first boots up or is first connected to the network. Nowhere in these sections is there any mention of the network-level OS registering with a management utility of the network/distributed system to receive notification when a component (or appliance) is added to the network.

IV. Claims 6 and 20 and Claims 12 and 13

In reviewing the sections cited against the above list of claims, Appellant notes that column 27, lines 5-12 and column 28, lines 1-11 provide no teaching or suggestion of detecting a network-level partition to which a component is added and notifying only the specific OS(s) that has registered to receive notification and that has access privilege for that network-level partition. Together, these two sections described a single file system having (1) a read-only partition for states that require no updates and (2) one or more read-write (updatable) partition(s) for states that require updates. The section further states that having two partitions "reduces the chance of the entire disk becoming inconsistent" (emphasis added).

Column 15, lines 53 and column 5, lines 55-57 merely describe registering the appliance with a global service via a web browser and (1) describe the "SODA appliances are inexpensive PCs running the Linux operating system."

V. Claims 5 and 19 and 15 and 21

As mentioned above, col. 27, lines 1 - col. 28, line 11 of *O'Toole* does not suggest associating a component to at least one partition when the component is added to the network. The cited sections of *Royce* also fail to teach this and the other features recited by Claims 5 and 19. The teachings of *Royce* and inherent limitations associated therewith are described above with reference to Claims 1 and 9.
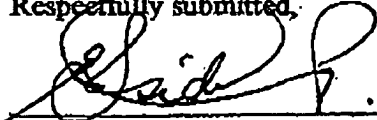
Notably also, *Royce* describes (at col. 4, ll 6-11, 31-34) that each mainframe LPAR is "connected via coaxial cable to an ... OBCP ... an operator console that captures the operating system image, which is used to monitor an operating system." At col. 5, lines 32-47 *Royce* describes using "Data Control Tables to enter data into the system. *Royce* further states that the autonotification messages are identified and detected by "programs known as traps," which " 'traps' messages from the operating system that indicate triggering event occurrences" (col. 6, line 66 - col. 7, line 5). None of these sections of *Royce* relied on by Examiner suggest key features of Appellant's claims

The detecting of a partition and notifying the OS based on whether the OS has access permission for the partition (Claims 15 and 21) are also not taught nor suggested by col. 28, lines 3-11 of *O'Toole*. Examiner incorrectly concludes here that "it is inherent in OS to provide access permission to the users or processes, without relating the reference to the specific application of partition-specific OS assignments, and vice versa.

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CONCLUSION

Appellant has pointed out with specificity the manifest error in the Examiner's rejections, and the claim language, which renders the invention patentable over the reference. Appellant, therefore, respectfully requests that this case be remanded to the Examiner with instructions to issue a Notice of Allowance for all pending claims.

Respectfully submitted,

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ATTORNEY FOR APPELLANT

APPENDIX

1.   A method for configuring a network that includes one or more network-level partitions and at least one operating system (OS) assigned to each of said one or more network-level partitions, said method comprising the steps of:

dynamically determining when a component is connected to a node of said network; and

in response to said dynamically determining step, configuring said network to provide support for said component, wherein, when an OS supports only components within a partition among the one or more network-level partitions to which the OS is assigned, said configuring process includes informing the OS assigned to a partition to which said node belongs of the presence of the component and enabling OS and other support for said component.

2.   The method of Claim 1, further comprising the steps of:

registering the OS with a management system of said network, wherein said management system provides a notification to each registered OS whenever a new component is added to said node and detected by said management system; and

automatically alerting said OS via said management system that said component is added to said node.

3.   The method of Claim 2, wherein said dynamically determining step is completed by said management system and includes the step of monitoring a network via a periodic sweep operation for visible configuration changes that indicate presence of the component.

4.   The method of Claim 2, wherein said network includes a switch mechanism and said dynamically determining step includes the steps of:

detecting an addition of said component to a link of said switch mechanism; and

in response to said detecting step, generating a trap message at said node and signaling said management system via the trap message that said component is connected to said network

5.   The method of Claim 2 further comprising the steps of:

associating said component to at least one partition of said network from among the one or more network-level partitions;

assigning port attributes to said component; and

associating said component to at least one OS assigned to said at least one partition.

6.   The method of Claim 2, further comprising the steps of:

determining the partition of said network to which said component has been associated;

checking for subscribed consumers within the partition, said subscribed consumers including said one or more OS; and

notifying said OS of said component only when said OS is assigned to said partition or said OS has subscribed to be notified of new components and has correct access privileges for the partition in which the node exists, wherein each OS is provided predefined access privileges to particular ones of said one or more network-level partitions.

7.   The method of Claim 6, further comprising the steps of:

tracking components that are supported by the OS via a component table;

automatically updating the component table available to said OS with information about said component; and

providing OS support to all components registered in said component table.

8.   A system for configuring a network, said system comprising:

a network manager that dynamically determines when a component is added to a node of said network and configures said network to provide support for said component, wherein said network is a system area network (SAN) that enables user processes to bypass an OS kernel process and directly access network communication hardware; and

a network administration utility that, and in response to said network manager dynamically determining when a component is added, notifies an OS registered with said network administration utility that said component is added, wherein said OS updates required OS parameters to enable OS support of said component.

9.   The system of Claim 8, wherein said network manager determines when said component is added by monitoring and periodically scanning said network for configuration changes.

10.   The system of Claim 8, wherein said network manager determines when said component is added by receiving a packet from said component indicated that said component is present on said network.

11.   The system of Claim 8, further comprising a registration table utilized by said OS for registering said OS for notification by said network administration utility of an addition of a component; and

12.   The system of Claim 11, further comprising:
        a partitioning mechanism that associates said component with one or more of a plurality of partitions of said network; and
        wherein said network manager notifies said OS only when said OS is associated with a same one of said one or more partitions.

13.   The system of Claim 12, further comprising a component registry available to said OS that is updated with information about said component when said component is detected, wherein said OS provides support to all components registered in said component registry to which said OS has access privilege.

14.   A network comprising:
        a switch;
        at least one node linked to said switch for adding components;
        a network manager that dynamically determines when a component is added to said at least one node of said network and configures said network to provide support for said component, wherein said network is a SAN that enables user processes to bypass an OS kernel process and directly access network communication hardware;
        at least one operating system (OS); and

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a network administration utility that, and in response to said network manager, dynamically determining when a component is added, notifies an OS registered with said network administration utility that said component is added, wherein said OS updates required OS parameters to enable OS support of said component.

15.   The network of Claim 14, further comprising:

        a partition agent that associates said component to one or more partitions of said network and controls access to said component via a partition monitoring function; and

        wherein said OS is notified of said component only when said OS has an access permission to a same one of said one or more partitions.

16.   The network of Claim 14, wherein said network is a system area network (SAN) that enables user processes to bypass an OS kernel process and directly access network communication hardware.

17.   A computer program product comprising:
        a computer readable medium; and
        program instructions on said computer readable medium for:
        dynamically determining when a component is connected to a node of said network; and

        in response to said dynamically determining step, configuring said network to provide support for said component, wherein an OS supports only components within a partition among the one or more network-level partitions to which the OS is assigned and said configuring process includes informing the OS assigned to a partition to which said node belongs of the presence of the component and enabling OS and other support for said component.

18.   The computer program product of Claim 17, further comprising program instructions for:
        registering the OS with a management system of said network, wherein said management system provides a notification to each registered OS whenever a new component is added to said node and detected by said management system; and

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automatically alerting said OS via said management system that said component is added to said node.

19.   The computer program product of Claim 18 further comprising program instructions for:
       associating said component to at least one partition of said network from among the one or more network-level partitions;
       assigning port attributes to said component; and
       associating said component to at least one OS assigned to said at least one partition.

20.   The computer program product of Claim 19, further comprising program instructions for:
       determining the partition of said network to which said component has been associated;
       checking for subscribed consumers within the partition, said subscribed consumers including said one or more OS; and
       notifying said OS of said component only when said OS is assigned to said partition or said OS has subscribed to be notified of new components.

21.   The computer program product of Claim 19, further comprising program instructions for:
       determining a partition of said network to which said component has been associated;
       checking for subscribed consumers within the partition, said subscribed consumers including said one or more OS; and
       notifying said OS only when said OS has access privileges for said partition and said component, wherein each OS is provided predefined access privileges to particular ones of said one or more network-level partitions.

22.   The computer program product of Claim 21, further comprising program instructions for:
       tracking components that are supported by the OS via a component table;
       automatically updating the component table available to said OS with information about said component; and
       providing OS support to all components registered in said component table.